REMARKS

The present amendment is responsive to the Office Action mailed in the above-referenced case on April 24, 2002. Claims 2-22, 24-34, 36-38 and 51-143 are presented below for examination. Claims 2-12 ,14, 20-22, 27-33, 51-63 and 69-71 are rejected as being unpatentable over Endo, et al. (U.S. Patent Number 5,764,624), herein after Endo, in view of Vaman, et al. (U.S. Patent Number 6,011,780), hereinafter Vaman. Claims 24-25, 36-37 and 72 are rejected as being unpatentable over Endo, in view of Vaman, and further in view of Ferstenberg, et al. (U.S. Patent Number 5,873,071), hereinafter Ferstenberg. Claims 26, 38, 73, 105 and 114 are rejected as being unpatentable over Endo, in view of Vaman, and further in view of Gerszberg, et al. (U.S. Patent Number 6,229,810B1), hereinafter Gerszberg. Claims 15-19, 34 and 64-68 are rejected as being unpatentable over Endo, in view of Vaman, and further in view of Moy (U.S. Patent Number 6,031,817), hereinafter Moy. Claims 74-80, 82-96, 103-104 and 106-112 are rejected as being unpatentable over Endo, in view of Ferstenberg, and further in view of Moy. Claims 115-127 and 133-142 are rejected as being unpatentable over Endo, in view of Gerzberg. Claims 65-68, 81, 97-102 and 113 are rejected as being unpatentable over Endo, and in view of Ferstenberg, and further in view of Moy. Claims 128-132 and 143 are rejected as being unpatentable over Endo, in view of Gerszberg, and further in view of Moy.

Applicant has carefully studied the prior art references cited and applied by the Examiner, and the Examiner's rejections and statements. In response to the Examiner's rejection of the claims, applicant herein amends the base claims to more particularly out and distinctly claim the subject matter regarded as inventive. Applicant also herein provides argument that not all of the limitations of applicant's base claims, as amended, are anticipated or suggested in the prior

art cited or applied by the Examiner. Applicant points out and argues the key limitations in applicant's claims, as amended, clearly and unarguably distinguishing applicant's claims over the prior art.

Regarding claims 2, 4, 6-7, 9-12, 14, 27, 30-33, 51, 52, 55-56 and 58-63 the Examiner states that Endo discloses an ATM switching system and path changing method, comprising substantially the claims of applicant's claim 2, adding that Endo, however, does not disclose that the network comprises at least a portion of a wide area network. The Examiner further states, that in an analogous art, Vaman discloses that the network comprises at least a portion of a wide area network.

Applicant herein amends the language of the independent claims to clearly recite after generating and storing the alternate output route, if data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, the data is forwarded over the alternate output route toward the destination node by embedding the data in virtual packets addressed for the alternate route

Applicant wishes to direct the Examiner's attention to applicant's specification beginning on page 7, line 20, wherein it is described, with reference to applicant's Fig. 1, that applicant's invention provides an arrangement for facilitating recovering from failures or other malfunctions in connection with the communication link 13(p) interconnecting 2 switching nodes 11(n), wherein in a first embodiment in which the network 10 transfers packets in a connectionless manner, each switching node 11(n) establishes, for each communication link 13(p) which interconnects it (that is, the switching node 11(n) and another switching node 11(n'), a permanent, preestablished special purpose "bypass" virtual circuit which bypasses the communication link, over which the switching node 11(n) can transfer packets in the event of a failure or other malfunction in connection with the communication link 13(p). If a communication link 13(p) fails or otherwise malfunctions, and if the switching node 11(n) receives a packet receives a packet which its routing table indicates

would be properly transferred over that communication link 13(p), instead of discarding the packet or routing it in a connectionless manner to another switching node 11(n"), the switching node 11(n) embeds the packet in one or more virtual circuit packets and transfers it over the preestablished bypass virtual circuit to the switching node 11 (n'). When the switching node (11n') receives the virtual packet(s) from the switching node 11(n) over the bypass virtual circuit, it will extract the original packet from the virtual circuit packet(s) and forward it toward the destination device 12(mD) in the usual manner.

Applicant points out that the invention of Endo achieves re-routing of data when a network communication link failure or malfunction occurs, in a completely different manner (different invention) which clearly cannot read on applicant's new and novel apparatus and method for re-routing data to be transferred over an alternate route. The switching system of Endo includes switchable connections between a plurality of input/output lines and stores header information for each connection to correspond to an output line for a normal time, and another output line to act as an alternate route for a failure time. The system selects, for each input packet received, at least one of the header informations in accordance with the presence or absence of a failure on the output line, and converts the content of the header portion of the input packet on the basis of the header information selected, wherein each input packet is output to the output line corresponding to the converted header information.

Applicant argues that the above method as disclosed by is substantially different than embedding received input data packets in virtual data packets for forwarding over an alternate virtual route, in the event of a malfunction or failure of the communication link over which the data would normally be routed. Applicant knows of no other system in the current art that accomplishes such re-routing of data utilizing the new and novel method has described above, and distinctly claimed in applicant's independent claims as amended, of embedding data to be transferred into, and extracting data to be transferred from, virtual data packets.

Applicant believes that all of the independent claims of applicant's invention, as amended and argued above by applicant are now clearly and unarguably patentable over the prior art presented by the Examiner, either singly or combined, as neither of the references presented by the Examiner disclose, suggest or intimate embedding data to be transferred into virtual packets, and extracting the data from the virtual packets for forwarding to the destination node, as is recited in applicant's independent claims as amended. Depending claims 3-26, 28-34, 36-38, 52-73, 75-83, 85-105, 107-114, 116-135 and 137-143 are then patentable on their own merits, or at least as depended from a patentable claim.

As all of the claims standing for examination as amended and argued above by applicant have been shown to be patentable over the art of record, applicant respectfully requests reconsideration and that the present case be passed quickly to issue. If any fees are due beyond fees paid with this amendment, authorization is made to deduct those fees from deposit account 50-0534. If any time extension is needed beyond any extension requested with this amendment, such extension is hereby requested.

Marked-Up Versions to Show Changes

In the claims:

2. (Twice Amended) A method of recovering from failures on a network having a plurality of nodes coupled by links over which data can be transferred between the nodes, each of a plurality of nodes storing information that associates links out of the node with destination nodes to which data can be transferred such that the node can forward data out of the node over a link to a next successive node toward an associated destination node, said method comprising:

for at least one of the nodes, generating and storing an alternate output route out of the node such that, in the event that data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, the at least one of the nodes can forward the data over the alternate output route toward the destination node; [and]

after generating and storing the alternate output route, if data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, forwarding the data over the alternate output route toward the destination node[;] , by embedding the data in virtual packets addressed for the alternate route

[wherein the network comprises at least a portion of a wide-area network].

27. (Twice Amended) An apparatus for recovering from failures on a network having a plurality of nodes coupled by links over which data can be transferred between the nodes, each of a plurality of nodes storing information that

associates links out of the node with destination nodes to which data can be transferred such that the node can forward data out of the node over a link to a next successive node toward an associated destination node, said apparatus comprising:

means for generating and storing, for at least one of the nodes, an alternate output route out of the node such that, in the event that data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, the at least one of the nodes can forward the data over the alternate output route toward the destination node; and

means for forwarding the data over the alternate output route toward the destination node after generating and storing the alternate output route, if data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node;

[wherein the network comprises at least a portion of a wide-area network] characterized in that data to be transferred is embedded in virtual packets addressed for the alternate route, and then sent.

51. (Once Amended) A method of recovering from failures on a network having a plurality of nodes coupled by links over which data can be transferred between the nodes, each of a plurality of nodes storing information that associates links out of the node with destination nodes to which data can be transferred such that the node can forward data out of the node over a link to a next successive node toward an associated destination node, said method comprising:

for at least one of the nodes, generating and storing an alternate output route out of the node such that, in the event that data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, the at least one of the nodes can forward the data over the alternate output route toward the destination node; [and]

after generating and storing the alternate output route, if data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, forwarding the data over the alternate output route toward the destination node[;] , by embedding the data in virtual packets addressed for the alternate route.

[wherein the network comprises at least a portion of a wide-area network.

74. (Once Amended) An apparatus for recovering from failures on a network having a plurality of nodes coupled by links over which data can be transferred between the nodes, each of a plurality of nodes storing information that associates links out of the node with destination nodes to which data can be transferred such that the node can forward data out of the node over a link to a next successive node toward an associated destination node, said apparatus comprising:

means for generating and storing, for at least one of the nodes, an alternate output route out of the node such that, in the event that data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, the at least one of the nodes can forward the data over the alternate output route toward the destination node; and

means for forwarding the data over the alternate output route toward the destination node after generating and storing the alternate output route, if data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node;

[wherein the network comprises at least a portion of a wide-area network] characterized in that data to be transferred is embedded in virtual packets addressed for the alternate route.

84. (Once Amended) A method of recovering from failures on a network having a plurality of nodes coupled by links over which data can be transferred between the nodes, each of a plurality of nodes storing information that associates links out of the node with destination nodes to which data can be transferred such that the node can forward data out of the node over a link to a next successive node toward an associated destination node, said method comprising:

for at least one of the nodes, generating and storing an alternate output route out of the node such that, in the event that data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, the at least one of the nodes can forward the data over the alternate output route toward the destination node; [and]

after generating and storing the alternate output route, if data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, forwarding the data over the alternate output route toward the destination node[;] , by embedding the data in virtual packets addressed for the alternate route.

[wherein the network comprises at least a portion of an intranet.]

106. (Once Amended) An apparatus for recovering from failures on a network having a plurality of nodes coupled by links over which data can be transferred between the nodes, each of a plurality of nodes storing information that associates links out of the node with destination nodes to which data can be transferred such that the node can forward data out of the node over a link to a next successive node toward an associated destination node, said apparatus comprising:

means for generating and storing, for at least one of the nodes, an alternate output route out of the node such that, in the event that data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, the at least one of the

nodes can forward the data over the alternate output route toward the destination node; and

means for forwarding the data over the alternate output route toward the destination node after generating and storing the alternate output route, if data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node;

[wherein the network comprises at least a portion of a wide-area network] characterized in that data to be transferred is embedded in virtual packets addressed for the alternate route.

115. (Once Amended) A method of recovering from failures on a network having a plurality of nodes coupled by links over which data can be transferred between the nodes, each of a plurality of nodes storing information that associates links out of the node with destination nodes to which data can be transferred such that the node can forward data out of the node over a link to a next successive node toward an associated destination node, said method comprising:

for at least one of the nodes, generating and storing an alternate output route out of the node such that, in the event that data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, the at least one of the nodes can forward the data over the alternate output route toward the destination node; [and]

after generating and storing the alternate output route, if data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, forwarding the data over the alternate output route toward the destination node[;] , by embedding the data in virtual packets addressed for the alternate route.

[wherein the network comprises at least a portion of an extranet.]

136. (Once Amended) An apparatus for recovering from failures on a network having a plurality of nodes coupled by links over which data can be transferred between the nodes, each of a plurality of nodes storing information that associates links out of the node with destination nodes to which data can be transferred such that the node can forward data out of the node over a link to a next successive node toward an associated destination node, said apparatus comprising:

means for generating and storing, for at least one of the nodes, an alternate output route out of the node such that, in the event that data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node, the at least one of the nodes can forward the data over the alternate output route toward the destination node; and

means for forwarding the data over the alternate output route toward the destination node after generating and storing the alternate output route, if data to be transferred toward a destination node cannot be forwarded to the next successive node over the link associated with the destination node;

[wherein the network comprises at least a portion of a wide-area network] characterized in that data to be transferred is embedded in virtual packets addressed for the alternate route, and then sent.

Respectfully Submitted,
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